PCT10

RAW SEQUENCE LISTING DATE: 05/15/2002
PATENT APPLICATION: US/10/018,902 TIME: 16:07:11

Input Set : A:\BB1373 USPCT Corrected Seq List.txt
Output Set: N:\CRF3\05152002\J018902.raw

<110> APPLICANT: Rebecca E. Cahoon
Steven Gutteridge
Leslie T. Harvell
J. Antoni Rafalski
Yong Tao
Zude Weng
<120> TITLE OF INVENTION: Polynucleotides Encoding Aminolevulinic Acid Biosynthetic Enzymes
<130> FILE REFERENCE: BB-1373
<140> CURRENT APPLICATION NUMBER: 10/018,902
C--> <141> CURRENT FILING DATE: 2002-04-11
<150> PRIOR APPLICATION NUMBER: 60/146600
<151> PRIOR FILING DATE: 1999-07-30
<160> NUMBER OF SEQ ID NOS: 30
<170> SOFTWARE: Microsoft Office 97
<210> SEQ ID NO: 1
<211> LENGTH: 312
<212> TYPE: DNA
<213> ORGANISM: Zea mays
<220> FEATURE:
<221> NAME/KEY: unsure
<222> LOCATION: (30)
<223> OTHER INFORMATION: n=a,c,g or t
<220> FEATURE:
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<222> LOCATION: (247)
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<222> LOCATION: (262)
<223> OTHER INFORMATION: n=a,c,g or t
<220> FEATURE:
<221> NAME/KEY: unsure
<222> LOCATION: (308)
<223> OTHER INFORMATION: n=a,c,g or t
<220> FEATURE:
<221> NAME/KEY: unsure
<222> LOCATION: (312)
<223> OTHER INFORMATION: n=a,c,g or t
<400> SEQUENCE: 1

ENTERED

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W--> 60 ccaggcgcag gcttggcaa aggctgccan cgtcgccgcc ctcgagcagt tcaagatatc  60
     61 cgccgaccgg tacatgaagg aaaggagtac catagctgtg ataggcctca gtgtacacac 120
     62 agcaccagtg gagatggcgt gtaaaaactt gctgttgcag aggaactgtg gccccgagct 180
     63 attcaagaac tttactagcc tgaaccatat tgaagagggc tgctgttgct tgagtgacct 240
W--> 64 gtgattngaa ttggaaatt tnatgtggtg ggcgctatcc atgggaaccg tggttatcag 300
W--> 65 agaaagtnag tn                                                   312
     68 <210> SEQ ID NO: 2
     69 <211> LENGTH: 63
     70 <212> TYPE: PRT
     71 <213> ORGANISM: Zea mays
     73 <220> FEATURE:
     74 <221> NAME/KEY: UNSURE
     75 <222> LOCATION: (10)
     76 <223> OTHER INFORMATION: Xaa = ANY AMINO ACID
     78 <220> FEATURE:
     79 <221> NAME/KEY: UNSURE
     80 <222> LOCATION: (46)..(47)
     81 <223> OTHER INFORMATION: Xaa = ANY AMINO ACID
     83 <400> SEQUENCE: 2
W--> 84 Gln Ala Gln Ala Leu Ala Lys Ala Ala Xaa Val Ala Ala Leu Glu Gln
     85  1               5                  10                  15
     87 Phe Lys Ile Ser Ala Asp Arg Tyr Met Lys Glu Arg Ser Thr Ile Ala
     88             20                  25                  30
W--> 90 Val Ile Gly Leu Ser Val His Thr Ala Pro Val Glu Met Xaa Xaa Lys
     91         35                  40                  45
     93 Leu Ala Val Ala Glu Glu Leu Trp Pro Arg Ala Ile Gln Glu Leu
     94      50                  55                  60
     97 <210> SEQ ID NO: 3
     98 <211> LENGTH: 1924
     99 <212> TYPE: DNA
    100 <213> ORGANISM: Zea mays
    102 <400> SEQUENCE: 3
    103 ccacgcgtcc gcatcaataa agaggagctt gggaagttgc caaggcctcc gatttcgcta   60
    104 atgcgacgat aatggcgacc acgacgtcag cgaccaccgc cgccgcagca gccgccacca  120
    105 ccgccaagcc gcgggggtcg tcgtcggccc tctgccagag ggtggccggc ggcggcaggc  180
    106 ggcgctccgg ggtggtgcgg tgcgacgccg ccggcgtgga ggcccaggcg caggccgtgg  240
    107 caaaggctgc cagcgtcgcc gccctcgagc agttcaagat atccgccgac cggtacatga  300
    108 aggaaaggag taccatagct gtgataggcc tcagtgtaca cacagcacca gtggagatgc  360
    109 gtgaaaaact tgctgttgca gaggaactgt ggccccgtgc tattcaagaa ctcactagcc  420
    110 tgaaccatat tgaagaggct gctgttctta gtacctgtaa tagaatggaa atttatgtgg  480
    111 tggcgctatc atggaaccgt ggtatcagag aagtagtgga ctggatgtcg aagaaaagtg  540
    112 gtattcccgc ttccgagctt agggagcacc tgttcatctt gcgaagcagt gatgccacac  600
    113 gccatctgtt tgaggtgtca gctggccttg actctttggt tctcggtgaa ggacaaatcc  660
    114 ttgctcaggt taaacaagtt gtgaggagtg gacagaacag tggaggcttg ggaaagaaca  720
    115 tcgataggat gttcaaggat gcaatcactg ctggaaagcg tgtccgcagc gagaccaaca  780
    116 tatcatctgg tgctgtttct gtcagttcag cggcggttga actggccctg atgaagcttc  840
    117 cgaagtctga agcactgtca gctaggatgc ttctgattgg tgctggtaaa atgggaaagc  900
    118 tagtgatcaa acatctggtt gccaaaggat gcaagaaggt tgttgtggtg aaccgctccg  960
    119 tggaaagggt ggatgctatt cgtgaggaga tgaaagatat agagatcgtg tacaggcctc 1020
```

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Output Set: N:\CRF3\05152002\J018902.raw

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120 tctcagacat gtatcaagct gctgctgaag ctgatgtcgt gttcaccagc accgcatctg 1080
121 aaacttcatt gttcgcaaaa gaacacgcag aggcactccc ccctgtctct gatactatgg 1140
122 gaggtgttcg cctgtttgtc gacatatctg tccccaggaa tgtcagcgca tgtgtgtctg 1200
123 aagttggcgc tgcacgagtg tacaatgtcg acgacttgaa agaggtggtg gaagccaaca 1260
124 aggaggaccg gctcaggaaa gcaatggagg cgcagacaat catcaccgaa gaactgagac 1320
125 ggttcgaggc atggagggac tcgctggaga ccgttccgac catcaagaag ctgaggtcgt 1380
126 acgcggacag gatcagggcc tcggagctcg agaagtgcct gcagaaagta ggtgaggacg 1440
127 ccctcaccaa gaagatgagg agagccatcg aggagctgag caccggcatc gttaacaagc 1500
128 tcctccatgg cccgctgcag cacctgaggt gcgacggcag cgacagccgc acccttgacg 1560
129 agacgctcga gaacatgcac gccctcaacc ggatgttcag cctcgacatg gagaaggcga 1620
130 tcatcgagca gaagatcaag gccaaggtgg agaagacaca aaactgaggc caggaagcaa 1680
131 tttttctacc accattatct atatatatag cgtctccaat ctcattccat ttttttatcc 1740
132 tttcactcag tgagcccttc ccctgctcac tgtgatcgtt aactgtgtct gtgaattaga 1800
133 gccatggcag cgtgtttgtca ataacagcaa tgtgtcccaa ttccccacag aagaaagact 1860
134 atatttatat gcatttattg gagcaaatag tttacttaaa aaaaaaaaaa aaaaaaaaaa 1920
135 aaag                                                            1924
138 <210> SEQ ID NO: 4
139 <211> LENGTH: 531
140 <212> TYPE: PRT
141 <213> ORGANISM: Zea mays
143 <400> SEQUENCE: 4
144 Met Ala Thr Thr Thr Ser Ala Thr Thr Ala Ala Ala Ala Ala Ala Thr
145   1               5                  10                  15
147 Thr Ala Lys Pro Arg Gly Ser Ser Ser Ala Leu Cys Gln Arg Val Ala
148             20                  25                  30
150 Gly Gly Gly Arg Arg Arg Ser Gly Val Val Arg Cys Asp Ala Ala Gly
151         35                  40                  45
153 Val Glu Ala Gln Ala Gln Ala Val Ala Lys Ala Ala Ser Val Ala Ala
154     50                  55                  60
156 Leu Glu Gln Phe Lys Ile Ser Ala Asp Arg Tyr Met Lys Glu Arg Ser
157 65                  70                  75                  80
159 Thr Ile Ala Val Ile Gly Leu Ser Val His Thr Ala Pro Val Glu Met
160                 85                  90                  95
162 Arg Glu Lys Leu Ala Val Ala Glu Glu Leu Trp Pro Arg Ala Ile Gln
163             100                 105                 110
165 Glu Leu Thr Ser Leu Asn His Ile Glu Glu Ala Ala Val Leu Ser Thr
166         115                 120                 125
168 Cys Asn Arg Met Glu Ile Tyr Val Val Ala Leu Ser Trp Asn Arg Gly
169     130                 135                 140
171 Ile Arg Glu Val Val Asp Trp Met Ser Lys Lys Ser Gly Ile Pro Ala
172 145                 150                 155                 160
174 Ser Glu Leu Arg Glu His Leu Phe Ile Leu Arg Ser Ser Asp Ala Thr
175                 165                 170                 175
177 Arg His Leu Phe Glu Val Ser Ala Gly Leu Asp Ser Leu Val Leu Gly
178             180                 185                 190
180 Glu Gly Gln Ile Leu Ala Gln Val Lys Gln Val Val Arg Ser Gly Gln
181         195                 200                 205
183 Asn Ser Gly Gly Leu Gly Lys Asn Ile Asp Arg Met Phe Lys Asp Ala
184     210                 215                 220
```

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PATENT APPLICATION: US/10/018,902 TIME: 16:07:11

Input Set : A:\BB1373 USPCT Corrected Seq List.txt
Output Set: N:\CRF3\05152002\J018902.raw

```
Ile Thr Ala Gly Lys Arg Val Arg Ser Glu Thr Asn Ile Ser Ser Gly
225                 230                 235                 240
Ala Val Ser Val Ser Ser Ala Ala Val Glu Leu Ala Leu Met Lys Leu
                245                 250                 255
Pro Lys Ser Glu Ala Leu Ser Ala Arg Met Leu Leu Ile Gly Ala Gly
            260                 265                 270
Lys Met Gly Lys Leu Val Ile Lys His Leu Val Ala Lys Gly Cys Lys
        275                 280                 285
Lys Val Val Val Val Asn Arg Ser Val Glu Arg Val Asp Ala Ile Arg
    290                 295                 300
Glu Glu Met Lys Asp Ile Glu Ile Val Tyr Arg Pro Leu Ser Asp Met
305                 310                 315                 320
Tyr Gln Ala Ala Ala Glu Ala Asp Val Val Phe Thr Ser Thr Ala Ser
                325                 330                 335
Glu Thr Ser Leu Phe Ala Lys Glu His Ala Glu Ala Leu Pro Pro Val
            340                 345                 350
Ser Asp Thr Met Gly Gly Val Arg Leu Phe Val Asp Ile Ser Val Pro
        355                 360                 365
Arg Asn Val Ser Ala Cys Val Ser Glu Val Gly Ala Ala Arg Val Tyr
    370                 375                 380
Asn Val Asp Asp Leu Lys Glu Val Val Glu Ala Asn Lys Glu Asp Arg
385                 390                 395                 400
Leu Arg Lys Ala Met Glu Ala Gln Thr Ile Ile Thr Glu Glu Leu Arg
                405                 410                 415
Arg Phe Glu Ala Trp Arg Asp Ser Leu Glu Thr Val Pro Thr Ile Lys
            420                 425                 430
Lys Leu Arg Ser Tyr Ala Asp Arg Ile Arg Ala Ser Glu Leu Glu Lys
        435                 440                 445
Cys Leu Gln Lys Val Gly Glu Asp Ala Leu Thr Lys Lys Met Arg Arg
    450                 455                 460
Ala Ile Glu Glu Leu Ser Thr Gly Ile Val Asn Lys Leu Leu His Gly
465                 470                 475                 480
Pro Leu Gln His Leu Arg Cys Asp Gly Ser Asp Ser Arg Thr Leu Asp
                485                 490                 495
Glu Thr Leu Glu Asn Met His Ala Leu Asn Arg Met Phe Ser Leu Asp
            500                 505                 510
Met Glu Lys Ala Ile Ile Glu Gln Lys Ile Lys Ala Lys Val Glu Lys
        515                 520                 525
Thr Gln Asn
    530
<210> SEQ ID NO: 5
<211> LENGTH: 510
<212> TYPE: DNA
<213> ORGANISM: Oryza sativa
<220> FEATURE:
<221> NAME/KEY: unsure
<222> LOCATION: (326)
<223> OTHER INFORMATION: n=a,c,g or t
<220> FEATURE:
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RAW SEQUENCE LISTING DATE: 05/15/2002
PATENT APPLICATION: US/10/018,902 TIME: 16:07:11

Input Set : A:\BB1373 USPCT Corrected Seq List.txt
Output Set: N:\CRF3\05152002\J018902.raw

<221> NAME/KEY: unsure
<222> LOCATION: (335)
<223> OTHER INFORMATION: n=a,c,g or t
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<223> OTHER INFORMATION: n=a,c,g or t
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<222> LOCATION: (403)
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<222> LOCATION: (411)..(412)
<223> OTHER INFORMATION: n=a,c,g or t
<220> FEATURE:
<221> NAME/KEY: unsure

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 05/15/2002
PATENT APPLICATION: US/10/018,902 TIME: 16:07:12

Input Set : A:\BB1373 USPCT Corrected Seq List.txt
Output Set: N:\CRF3\05152002\J018902.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 30,247,256,262,308,312
Seq#:2; Xaa Pos. 10,46,47
Seq#:5; N Pos. 326,335,344,355,362,364,371,378,382,390,399,403,411,412,434
Seq#:5; N Pos. 444,448,453,483,490,492,494,502
Seq#:6; Xaa Pos. 76
Seq#:9; N Pos. 217,241,243,301,360,373,405,412,426,439,447,515
Seq#:13; N Pos. 496,500
Seq#:17; N Pos. 1,2,5,8,16,18,21,22,27,33,35,40,101,232,298,313,349,360,377
Seq#:17; N Pos. 378,384,388,391,392,397,400,407,410,423,424,425,426,427,428
Seq#:17; N Pos. 431,432,434,440,441,446,451,454,455
Seq#:18; Xaa Pos. 8,21
Seq#:23; N Pos. 136,220,266,334,341,348,353,356,360,382,385,396,404,410,416
Seq#:23; N Pos. 419,434,451,453
Seq#:24; Xaa Pos. 32,60,75,80,98
Seq#:26; Xaa Pos. 322
Seq#:27; N Pos. 321,334,350,356,362,367,375,400,402,417,439,460,464,467,475
Seq#:27; N Pos. 490,499,507,528,530,537,602,603,609,625,636,650